

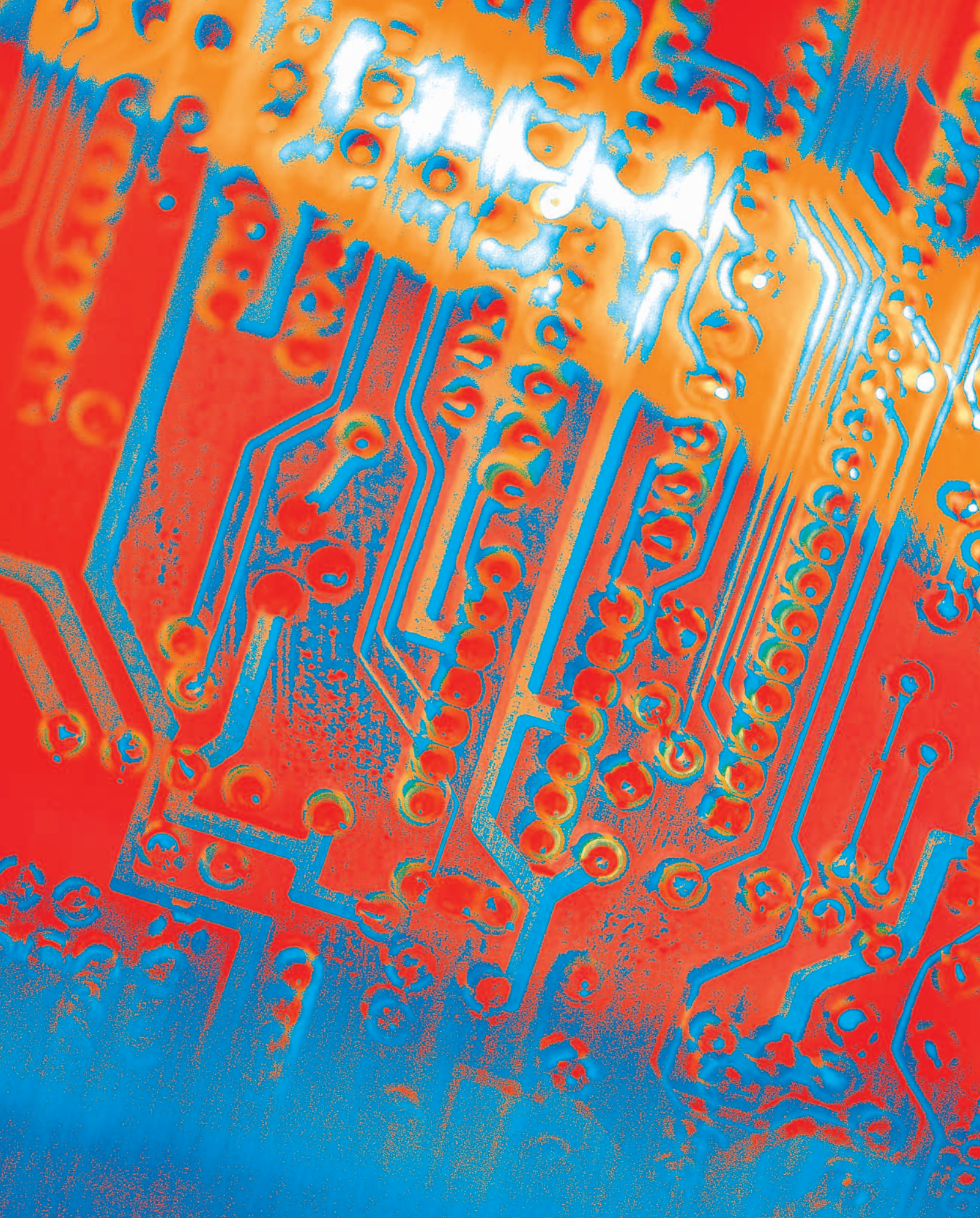
EAT•N

Powerware

Power Xpert® 4000/6000/8000 Power Quality Meters

Product Focus





Power Xpert Meter

Next Generation Power Quality Meter

You can't manage what you can't measure, and you certainly can't measure something you can't even see, without a power quality instrument that is. Invisible and fleeting power disturbances can be silent killers — the electronic equivalent of high blood pressure. Eaton®'s

Power Xpert 4000/6000/8000 Meters represent a new genre of power quality instruments and comprehensive world-class power measurement and monitoring that reduce day-to-day operating costs and help avoid costly business interruptions.



Power Xpert, so you don't have to be one.

Power Xpert Meter

Next Generation Power Quality Monitoring and Management is Now as Easy as Surfing to it with Your Web Browser or "Twist-and-Click" on the LCD Display!



Communications LED

Events LED

Back-Button

320 x 240 Pixel Backlit LCD Graphic Display

Navigation Control Dial

Ethernet RJ45 Configuration Port

Power Input

Configuration, Display and Modbus® Card

Communication Expansion Card

- 100F & 10/100Base-T Ethernet
- ModbusTCP
- Web server communications
- E-mail on alarm, periodic data e-mail
- NTP time synchronization
- RS-485 Modbus RTU port
- RS-232 Modbus ASCII port

Digital I/O Card

- 8 digital inputs
- 2 solid state outputs
- 3 relay outputs

Display Measurements

- Height: 9.00 inches (229 mm)
- Width: 7.80 inches (198 mm)
- Depth: 2.00 inches (51 mm)
- Shipping weight: 2.1 lbs. (0.95 kg)

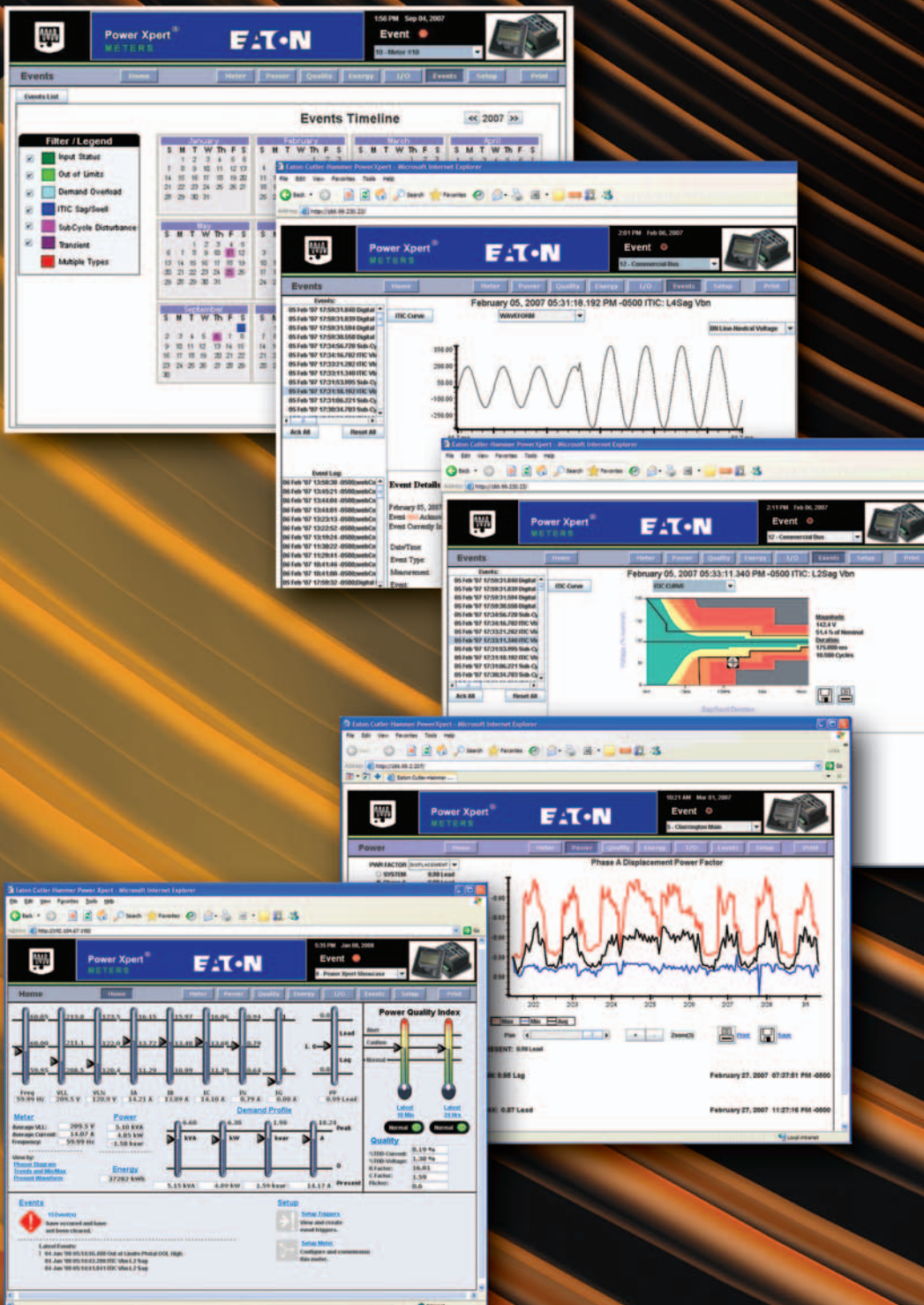
Auxiliary Voltage Terminal

Voltage Terminal

Current Transformer Terminal

Meter Module Measurements

- Height: 8.20 inches (208 mm)
- Width: 8.20 inches (208 mm)
- Depth: 5.86 inches (without connectors, 149 mm)
- Shipping weight: 7.1 lbs. (3.22 kg)

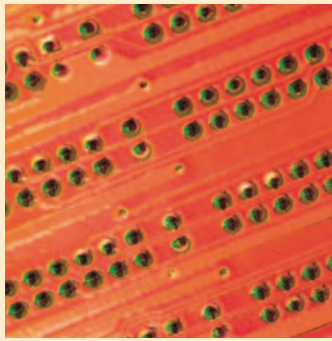


Internet Enabled

The Power Xpert Meter is an Internet enabled, (includes a built-in Web server) next generation power quality meter with comprehensive power measurement and integrated quality analysis. The meter allows you to use a standard Web browser to surf the meter and analyze waveforms, trend and ITC graphs.

Power Xpert Meter

4000/6000/8000



Innovative. Intuitive. Accurate. Accessible.

The meters combine state-of-the-art technology with next generation ITIC diagnostics, waveform capture, data trending and performance benchmarking, along with a “Twist-and-Click” graphic display: a new paradigm for simplicity and ease-of-use in the marketplace. The embedded Web server enables users to surf to the meter over the Internet via a standard Web browser. The new platform offers advanced functionality like high-speed impulsive transient capture, 6 MHz sampling rate (100,000 samples per cycle), anti-aliasing, ITIC analysis and automatic trigger setting, field-upgradeable firmware, memory expandable to 1 GB and optional digital, relay and solid-state I/O.

Applications

Identify Power Quality Problems

- Identify harmonics, sags, swells and transients damaging or disrupting sensitive, mission-critical IT equipment
- Boost IT equipment service life to the maximum

- Analyze sequence of events up to one millisecond time resolution
- Protect motors from damage
- Preserve the integrity of processes and batches
- Prevent blown capacitor bank fuses
- Protect transformers and conductors from overheating

Detect and Record High-Speed Transients

- Avoid equipment damage and disruption
- Identify equipment malfunction

Monitor Circuit Loading

- Avoid overloads and nuisance overload trips
- Maximize equipment utilization
- Manage emergency overloads

Manage Energy Utilization

- Reduce peak demand charges and power factor penalties
- Identify excessive energy consumption

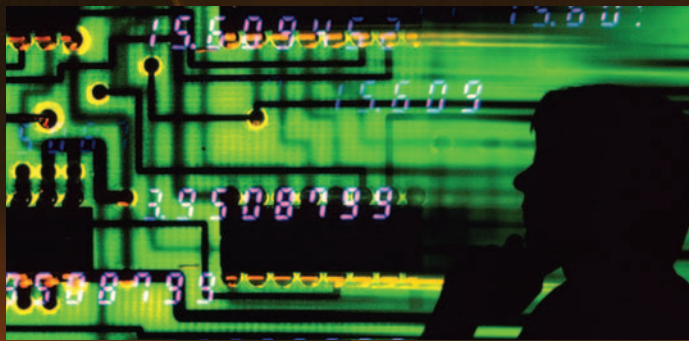
Features and Benefits

- Embedded Web server — see and analyze waveforms, trends and harmonics directly in your Web browser or LCD meter graphic display
- Automatic power quality analysis and trigger setting with built-in ITIC performance curve: detect and capture sags, swells, transients, harmonics and flicker
- Accurately detect fast transients that previous generation monitors would miss, by assessing circuit activity at very high sampling rates (up to 100,000 samples per cycle)
- Comprehensive power, energy and demand measurements for 138 standard data points logged
 - Voltage, current: per phase minimum, maximum, average, trend graph analysis, export, print
 - Power: power factor, apparent, real, reactive, frequency
 - Energy, demand: forward, reverse, net, sum, TOU, profile, previous month comparison, graph analysis, export, print
- Up to one millisecond time synchronization and event logging capability for sequence of events analysis
- Get an at-a-glance view of power quality with patent-pending Power Quality Index gauge, statistically derived trending and red-yellow-green indicators for overall power health
- Support continuous, non-disruptive monitoring with a permanently installed meter
- Dramatically reduce the cost of monitoring power quality, compared to yesterday's specialized power quality instruments and consultants
- Alarm notifications are also available remotely via e-mail with waveform attached
- Use industry-standard communication protocols, to support a multitude of configurations and third-party software: HTTP, FTP, Modbus RTU, Modbus TCP, SNMP, SMTP, NTP, COMTRADE
- 1 GB data storage capability
- Supported via Power Xpert Software and Power Xpert Architecture hardware components
- ANSI C12.20 accuracy



Power Xpert Meter

Home Page



The Power Xpert Meter home page, viewed in a standard Web browser, summarizes the top level critical power quality information on a single page. Complex power quality data is presented in useful and simple graphical charts and gauges.

Power Xpert Device Type Icon

3D Function Button Bar

3D 'Mercury' Filled Voltage, Current, Frequency, Power Factor Gauges

3D Arrowhead Pointing to Exact Peak Point

Measurement Parameters

Underlined Web Links

Active, Unacknowledged Events

One Millisecond Time Stamping Resolution

Easily Upgrade Your Power Xpert 4000 Meter

Eaton understands that our customers' needs change over time. That's why we've developed meters that can grow with you. Once a Power Xpert 4000 Meter is purchased, you have

the ability to upgrade to a Power Xpert 6000, with no intervention from Eaton, when needed. All the features of the Power Xpert 4000 Meter that you have been using and depend on remain, however, once updated, all the additional features of the Power Xpert 6000 Meter are available.

The self-upgrade is available on Eaton's Web site. You'll need a credit card, your Power Xpert 4000 Meter serial number and date code (you will be presented with this info if you are using the upgrade link directly from your Power Xpert Meter) and your

e-mail address. Once you have completed the purchase, we will send you your new license key information via e-mail that will allow you to complete the upgrade.

Time Stamp

Picture of Device

Event LED

Drop-Down Menu for Meter Selection

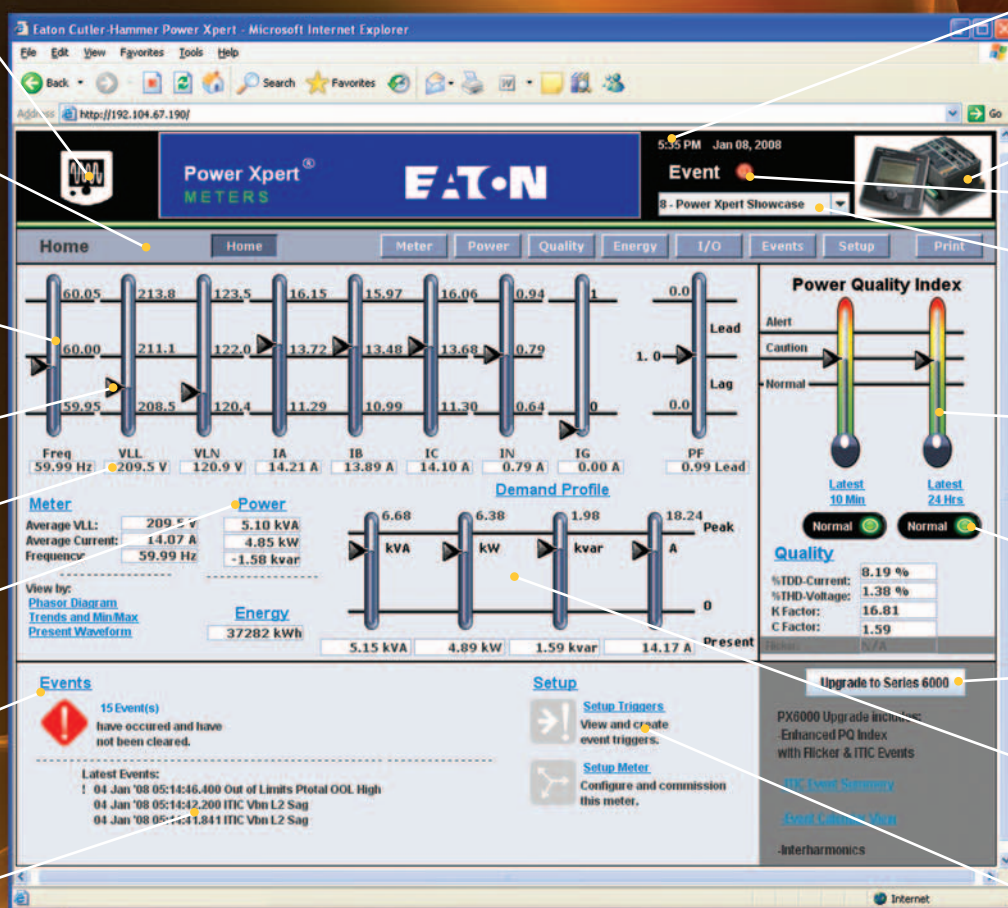
3D PQ Health Index Thermometer Gauge

3D LEDs for PQ Temperature

Button to Upgrade to the Power Xpert 6000

Demand Profile Chart

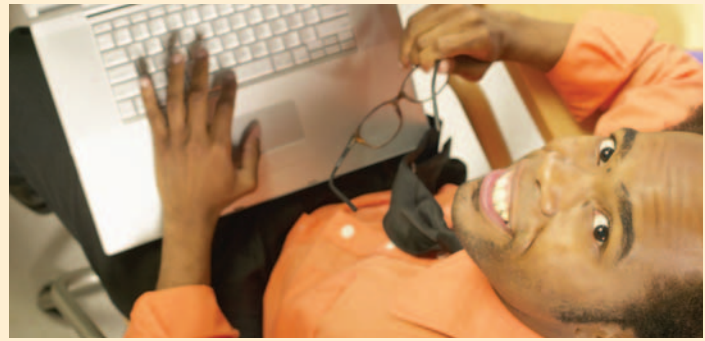
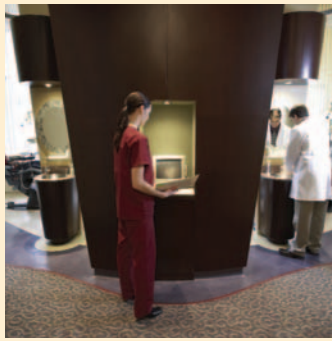
Quick Links to Meter Setup



Eaton is proud to offer a unique feature for existing Power Xpert 4000 Meter users with firmware version 12.x.x release — the ability to seamlessly upgrade to a more powerful feature set that has earlier been available only on the Power Xpert 6000 Meters. Upgrades can be purchased directly from the home page by clicking on the 'Upgrade to series 6000' button.

Power Xpert Meter

Standard.
Enhanced.
Premium.



Three Flavors of Power Quality

The Power Xpert 4000 Meter

This meter provides all the core functions for monitoring power consumption and power quality. This unit uses Delta Sigma

technology to sample circuits at 1,024 samples per cycle for extremely accurate measurement of power factor and energy consumption.

The Power Xpert 6000 Meter

This meter is geared toward the IT market by providing automatic

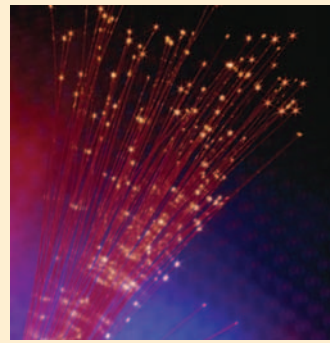
trigger settings for IT equipment and plots events on an ITIC (Information Technology Industry Council) performance curve so they can be very easily analyzed. In addition, this meter offers a patent-pending Power Quality Index temperature gauge along with flicker calculations.

The Power Xpert 8000 Meter

This meter adds the ability to capture very fast transients by sampling at 6 MHz — 100,000 samples per cycle. That's a sample every 166 nanoseconds — six samples every millionth of a second, across three input channels as well as neutral-to-ground.

FEATURES AND BENEFITS OF THE POWER XPERT 4000, 6000 AND 8000 METERS

Feature	Power Xpert 4000	6000	8000	Benefit
General				
Embedded Web server	■	■	■	Use a standard Web browser to monitor and manage the meter over the network, Internet
TOU metering support	■	■	■	Time of usage can be set up to support 4 different schedules
Firmware flash upgrade support	■	■	■	Enables you to flash the meter with the latest firmware upgrades
Self-learning capability (characterizes "normal" per circuit)	■	■	■	The meter can automatically adjust to the environment and alarm only when "real" events occur
Power, Energy & Demand				
Voltage, current: per phase minimum, maximum, average, trend graph analysis, export, print	■	■	■	Review voltage and current trends, export, print and analyze parameters right on the meter or external software
Energy and demand plot comparisons month-to-month, week-to-week	■ ②	■ ②	■ ②	Plot two months or two weeks for vivid energy or demand comparison
Power: power factor, apparent, real, reactive, frequency	■	■	■	Review power usage and power factor and avoid potential PF penalties
Energy, demand: forward, reverse, net, sum, TOU, profile, previous month comparison, graph analysis, export, print	■	■	■	Keep track of your energy usage, compare time of usage and usage against previous month, identify peaks to conserve energy usage
Power Quality Analysis				
Statistical Analysis (min., max., average)	■	■	■	Review statistical trends, identify past and future problem areas
Sag and swell monitoring, management and recording	■	■	■	Capture electrical sags and swells and analyze the waveforms
Symmetrical components: zero, negative, positive	■	■	■	Analyze possibly unbalanced three-phase power systems
Low frequency transient detection and capture	■	■	■	Capture lower frequency transient waveforms for retrospective analysis or e-mailing
Sampling rate, maximum samples/cycle	1024 ①	1024 ①	100,000	Extremely high sampling rate will effectively capture impulsive transients
"Number of nines" uptime data (e.g., 6 nines=99.9999%)	■	■	■	Review uptime availability percent
K-factor	■ ②	■	■	Review the ratio of eddy current losses, e.g., when driving non-linear and linear loads
Crest factor	■ ②	■	■	Review the peak-to-average ratio of the waveform
Security				
Secure 5 level user access privileges	■	■	■	Define appropriate security access level per user
Communications & I/O				
Modbus TCP	■	■	■	Easy integration with standard protocol to power management and other software
Modbus RTU	■	■	■	Integrate meters to existing Modbus networks, daisy chain several (1 – 16) meters together
HTML	■	■	■	Communicate to the meter over the Internet via standard Web browser
SNMP (Simple Network Management Protocol)	■	■	■	Communicate with the meter via Simple Network Protocol; hook to existing NMS system
SMTP (Simple Mail Transfer Protocol)	■	■	■	Send e-mail messages via standard Simple Mail Transfer Protocol
FTP (File Transfer Protocol)	■	■	■	Access, copy, paste, cut waveform capture files on the meter with an FTP Client
NTP (Network Time Protocol)	■	■	■	Network Time Protocol support enables the meter to synchronize time over the network up to the 1 millisecond resolution
COMTRADE, open IEEE® standard file format for waveform capture export	■	■	■	Import waveform captures in standard IEEE (C37.111-1999) COMTRADE file format to third-party software
Trend measurements CSV file Export	■	■	■	Easily export trend measurements to third-party applications, e.g., Microsoft® Excel® in standard CSV file format
I/O (8 digital inputs, 3 relay outputs, 2 solid-state KYZ outputs)	■	■	■	The Power Xpert I/O Card is extremely flexible and can be used in a large variety of different applications. Digital inputs and relay outputs can be programmed to interact during various conditions defined by the user. Various third-party devices, such as alarm, pulse meters, trip units and sensors can be easily integrated to the Power Xpert Meter. Triggers and events can be tied to the meter's standard functions such as, e.g., e-mail, logs and trends



FEATURES AND BENEFITS OF THE POWER XPERT 4000, 6000 AND 8000 METERS

Feature	Power Xpert 4000	6000	8000	Benefit
Time Synchronization				
NTP time synchronization up to 1 millisecond accuracy	■	■	■	Network Time Protocol support enables the meter to synchronize time over the network up to the 1 millisecond resolution
GPS time synchronization up to 1 millisecond accuracy	■	■	■	The GPS option allows the meter to synchronize time over the GPS satellite positioning system up to the 1 millisecond resolution
Logs				
Trend logging	■	■	■	Log trend information for easy statistical analysis
Load profile	■	■	■	Review the load profile graph to get a better understanding of your electrical load versus time
Event logging	■	■	■	Log events for retrospective event analysis
Memory & Storage				
512 MB standard memory	■	■	■	Store large amounts of waveform captures and events for historical analysis
1 GB optional memory	■	■	■	Store massive amounts of waveform captures and events for historical analysis
Harmonics				
Harmonic levels	127	127	127	Provides extremely fast, high resolution D/A conversion
Total Harmonic Distortion (THD)	■	■	■	Review the total harmonic distortion level directly on the meter
Delta-Sigma D/A conversion technology	■	■	■	Provides extremely fast, high resolution D/A conversion
Harmonics over-sampling (1,024 samples per cycle)	■	■	■	Over-sampling enables the usage of Anti-Aliasing technology, increasing accuracy
Anti-alias filtering	■	■	■	Technology to remove out-of-band signal components resulting in more accurate data
Individual harmonics	■ ²	■	■	Review individual harmonic levels directly on the meter
Total Demand Distortion (TDD)	■ ²	■	■	Identify harmful harmonics in, e.g., lightly loaded variable-speed drive environments where THD may be high but not relative
Interharmonics	—	■ ²	■ ²	Review interharmonic levels on the meter
Highlights				
Sub-cycle disturbance capturing	■	■	■	Capture fast voltage changes/low frequency transient (e.g., capacitor switching transient)
dV/dt triggers for sub-cycle oscillatory transients	■	■	■	Detect and record a large magnitude oscillation transient resulting in equipment damage
Absolute threshold and dV/dt triggering	■	■	■	Detect and record if a surge suppressor is necessary
Power Quality Index — Standard (at-a-glance “thermometer” view of power quality)	■ ²	■	■	Complex power quality data put into simple graphic format
Power Quality Index — Enhanced (at-a-glance “thermometer” view of power quality)	—	■ ²	—	Complex power quality data put into simple graphic format (includes ITIC events and flicker calculations)
Flicker calculations	—	■	■	Detect and quantify low frequency rms voltage variations causing incandescent lighting flicker
Automatic trigger setting	—	■	■	Trigger thresholds are automatically set according to ITIC (CBEMA) standard, no need to figure this out by yourself
Automatic event severity analysis	—	■	■	Automatically analyze the severity of the event with the ITIC (CBEMA) performance curve plot, see where the event actually hit
Event severity counters	—	■	■	An ITIC (CBEMA) event counter keeps track of the number of all sags, swells and transients
ITIC (Information Technology Industry Council), previously CBEMA performance curve	—	■	■	ITIC (Information Technology Industry Council), previously CBEMA performance curve for easy power problem evaluation
Custom ITIC (CBEMA) plot with individual event magnitude and duration	—	■	■	Review custom ITIC (CBEMA) plots of individual events showing you the actual magnitude, duration and hit are in a simple graphical representation
Event calendar view	—	■ ²	■ ²	The Events Timeline calendar view provides instant insight to the frequency of power events and helps detect reoccurring problems
Events timeline view	—	■ ²	■ ²	View and understand the sequence of events that have occurred during a period of time
Sequence of events and events plot on waveform	—	■ ²	■ ²	Plot color-coded events on a captured waveform to gain insight into the sequence of events cycle per cycle
Power Quality Index — Premium (at-a-glance “thermometer” view of power quality)	—	—	■ ²	Complex power quality data put into simple graphic format (includes ITIC events and flicker calculations)
High-Speed Transient Capture & Detection				
6 MHz capture of impulsive transients	—	—	■	Capture impulsive transients by taking 6 samples every millionth of a second
Transient capture duration: ~20 ms/6 MHz ~120 ms/1 MHz	—	—	■	Record and analyze transients during a longer timeframe
Waveform recorded at 100,000 samples per cycle	—	—	■	High speed ensures impulsive transients are correctly captured (fast rise time)
Three-phase voltage and neutral-to-ground fast transient capture	—	—	■	Capture impulsive transients on all 4 channels

¹ Delta-Sigma A/D oversampling rate.

² These features are included with firmware release v. 12.x.x or higher.

NOTE: These specifications are subject to change without notice and represent the maximum capabilities of the product with all options installed. This is not a complete feature list. Features and functionality may vary depending on selected options and product model. Please refer to the technical data sheet and User Manual for detailed specifications.

Power Xpert Meter

A World of Difference in Power Quality Analysis

One Millisecond Time Resolution — Most Accurate Time Available

Harmonics, voltage fluctuations, transient overvoltage conditions and other power anomalies can wreak havoc on your equipment and processes. It is essential to fully understand the quality of the power that is being delivered throughout the facility. Detailed event information makes it possible to pinpoint the root causes of problems — or prevent them from occurring. With up to one millisecond time stamping accuracy available via GPS and IRIG-time sources, Power Xpert Meters register the sequence of events in a time-synchronized environment. Based on National Institute of Standards and Technology (NIST) atomic time, you can count on the most accurate time available. In the past, basic power monitors were

1. Power Quality Index

The patent-pending Power Quality Index measures the ‘temperature’ of your power quality. The gauges alarm levels are based on current TDD%, voltage THD%, K and C factors, flicker and ITIC events measurements (available on the 6000 and 8000 models only).

2. One Millisecond Time Resolution

Accuracy: By taking readings at sub-cycle levels — like the Power Xpert 8000 model, which can sample at a rate of 166.67 nanoseconds per sample — Power Xpert Meters let you accurately see the detailed performance of each piece of gear they are connected to.

Time: To understand the cause and effect of events, you need to be able to analyze the interaction of equipment and the sequence of events. This requires accurate time synchronization across the system.



used to identify existing conditions on an electrical distribution system or to evaluate past problems. If you wanted to detect fast voltage transients, you had to bring in portable power quality monitors that cost up to \$20,000 and usually required an outside consultant.

No matter if you are a PhD level power quality engineer or an IT system administrator, these instruments will provide you with the level of information you need, in an easy to understand graphical user interface at astonishing speeds of six samples every millionth of a second, if necessary.

can predict and prevent power quality problems before they lead to equipment malfunction, overheated circuits and system failure.

Built-in Graphing — Six Samples Every Millionth of a Second

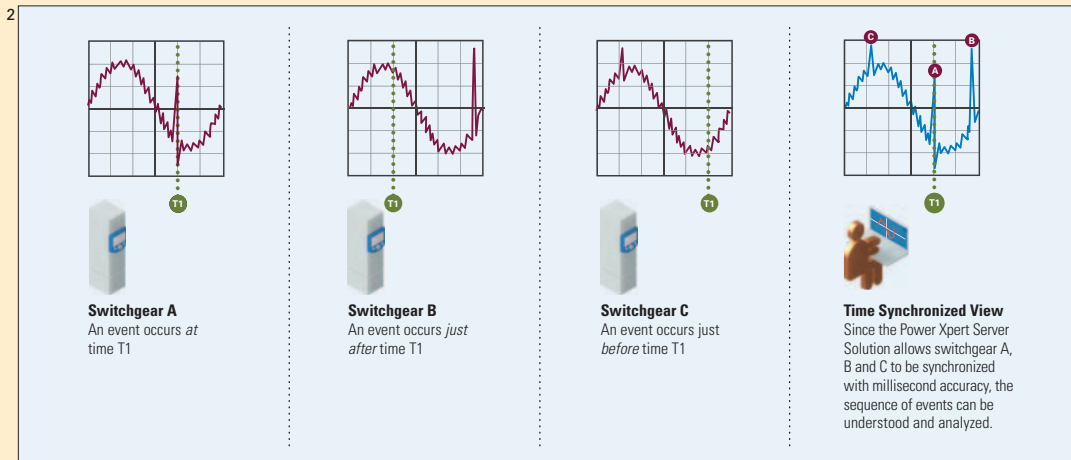
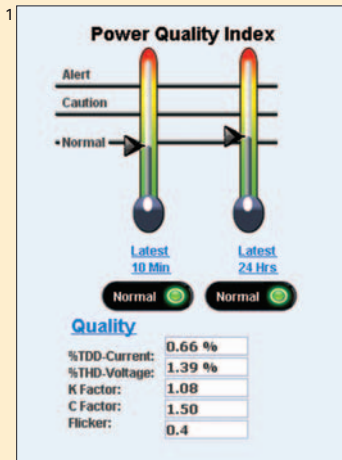
Power Xpert 4000/6000/8000 next-generation meters redefine the art of measuring and monitoring power quality. Thanks to the latest technologies, these metering instruments are able to measure, trend, analyze and capture waveforms while serving Web pages to users over the Internet, along with simultaneous FTP downloading and comma separated values (CSV) exporting capabilities.

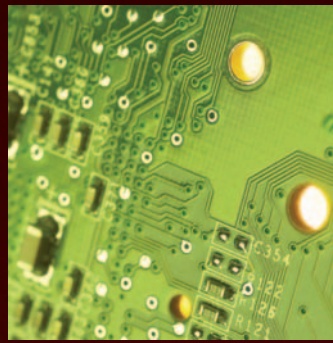
Easy-to-Use Interface — Demystifies Power Quality

In designing these power quality instruments, Eaton set out to demystify power quality — to take highly specialized data and convert it into useful information that doesn’t require a power guru or consultant to understand. The result is an uncommonly easy-to-use interface and new graphical analysis of complex power quality data — delivered via e-mail, over the Web and to third-party applications. With these capabilities, your power team

One Gigabyte of Storage Capability — Store and Trend 5 – 10 Years Worth of Data

Having enough storage capacity is a critical factor at this level of power quality instrumentation. How long can I store data locally on the power quality meter before the system will have to start overwriting previously captured information? A Power Xpert Meter has 512 MB of storage as standard and can be upgraded all the way to 1 GB. In a typical power quality environment this would provide storage capability for 5 – 10 years depending on the meter model.





3. ITIC Curves

Sample ITIC curve as displayed by the Power Xpert Meter.

POWER XPERT 4000/6000/8000 METERS' ESTIMATED MEMORY AND STORAGE CAPACITY WITH 512 MB STANDARD AND 1 GB OPTIONAL COMPACTFLASH

Model	Event	File size (KB)	Occurrence per Month ¹		Memory Usage (MB)		Months of Capacity w/512MB CF ²		Months of Capacity w/1GB CF ³	
			Typical	Severe	Typical	Severe	Typical	Severe	Typical	Severe
PX-4000	Sub-Cycle Disturbance	483	10	60	4.7	28.3	100	17	209	35
	ITIC Event	483	5	20	2.4	9.4	200	50	417	104
PX-6000	Sub-Cycle Disturbance	483	10	60	4.7	28.3	100	17	209	35
	ITIC and Sub-Cycle Disturbance Combined	Total	15	80	11.8	66.0	40	7	83	15
	ITIC Event	483	5	20	2.4	9.4	200	50	417	104
PX-8000	Sub-Cycle Disturbance	483	10	60	4.7	28.3	100	17	209	35
	Transients	2048	3	30	6.0	60.0	79	8	164	16
	ITIC, Sub-Cycle and Transients Combined	Total	18	110	13.1	95.2	36	5	75	10
	ITIC Event	483	5	20	2.4	9.4	200	50	417	104

¹ The typical and severe power quality event occurrences are estimates and may vary depending on the electrical environment.

² With 512 MB standard CompactFlash® Card; memory is not allocated by event category; memory is used first come, first served.

³ With 1 GB optional CompactFlash Card; memory is not allocated by event category; memory is used first come, first served.

Built-in ITIC Performance Curve Analysis

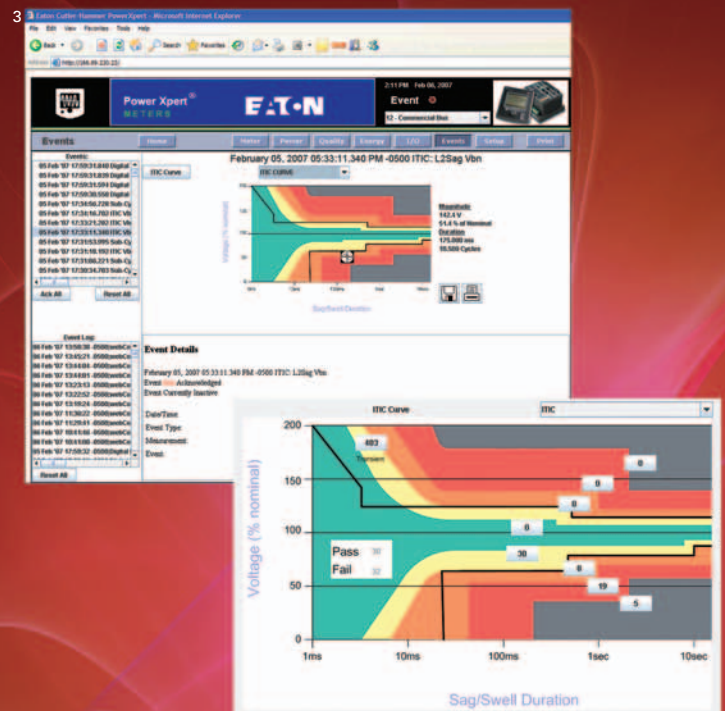
Takes the Guesswork Out of Understanding the Severity of IT Power Quality Events

The ITIC (Information Technology Industry Council) curve describes how much (or how little) voltage your IT equipment can sustain without damage, over what length of time (nanoseconds to seconds). When you can plot power events in this broader context — relative to multiple variables — you can identify trouble that could cause damage or may be brewing. Of the few meters that can plot events on an ITIC curve, most require special software to do it. Eaton's Power Xpert 4000/6000/8000 Meters require no special software. Out of the box, these meters provide crisp graphics on minimum, maximum, average trends, measurement gauges, waveforms both on the local LCD display and the Web interface.

ITIC Curves

The Power Xpert 6000 and 8000 Meter models automatically plot events on the ITIC curve. The user can drill down on any specific event and get information on where exactly the event hit and what was its magnitude and duration. With the optional Power Xpert Time Server, all events get time stamped at a 1 millisecond synchronized resolution.

The ITIC Web page includes counters to track the occurrence of disturbances and a pass/fail summary. In addition, selecting any disturbance counter links to a detailed event view of the disturbances in that ITIC category. Disturbance waveforms can be viewed from the browser.



Power Xpert Meter

Access the Meter Through the Internet/Ethernet Via Embedded Web Server

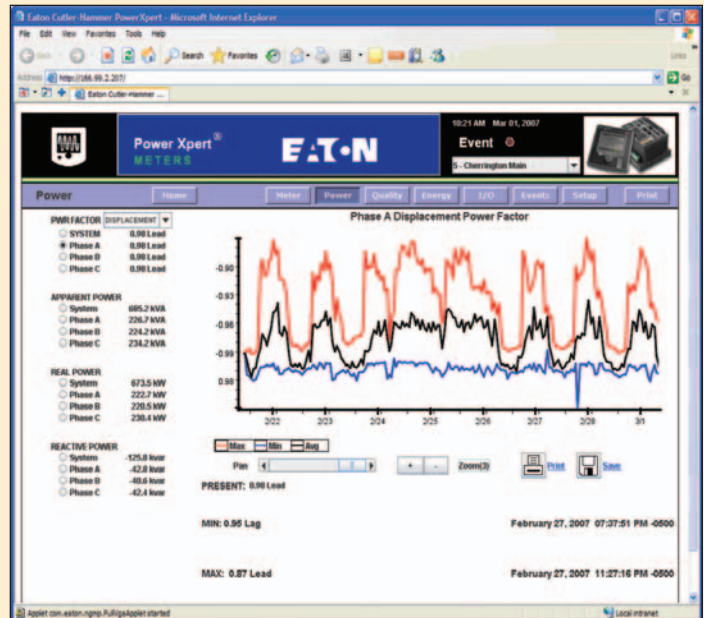
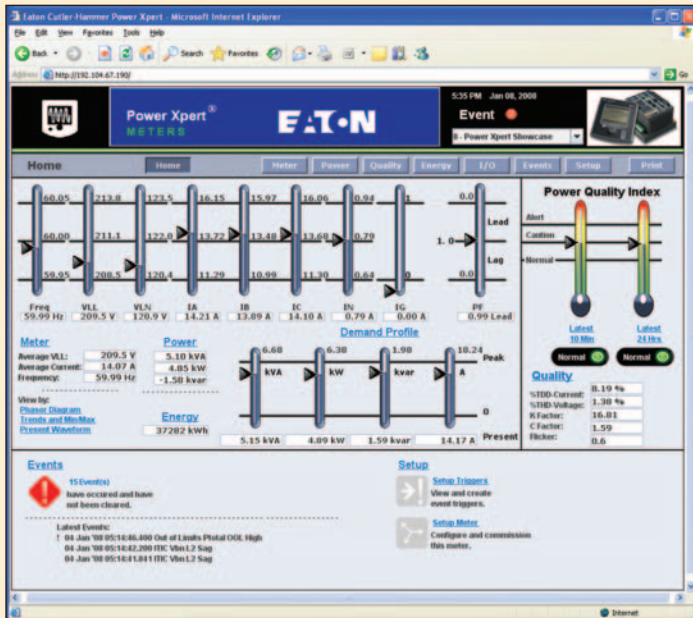
Power Xpert 4000/6000/8000 Meter offers Eaton customers a new level of accessibility to the critical information required to manage the electrical distribution system. The meter's embedded Web server includes real-time circuit information in both numeric and graphical visual formats to help monitor circuit parameters, such as current loading, voltage and power levels, power factor.

Power Xpert 4000/6000/8000 Meter Home Page

The Web server also provides the energy and demand readings required to help manage the cost of energy. Readings include kWh, KVARh, delivered and received and KVAh with time of use and separate status input controlled energy accumulation to account for energy during special times, such as rate alert periods or stand-by generator times of operation. The Web server on the Power Xpert Meters also includes critical information regarding power quality, such as harmonic distortion, flicker, crest factor, K-factor and more.

Historical Trend Plot

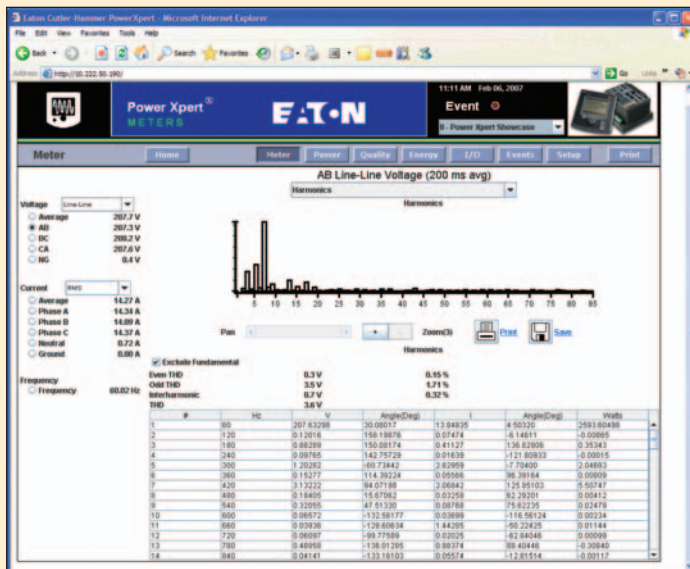
The Power Xpert 4000/6000/8000 Meter's embedded Web server supports graphical trend charts of key circuit measurements, such as current, voltage, power and energy. The trend chart supports a zoom feature that allows the user to view data over a short period of 18 hours or a longer period of 48 months. The trend chart has a horizontal slider bar control to manage scrolling forward and backward through the data. Trend charts of basic readings include minimum, maximum and average readings. Trend charts of energy data also display demand values.





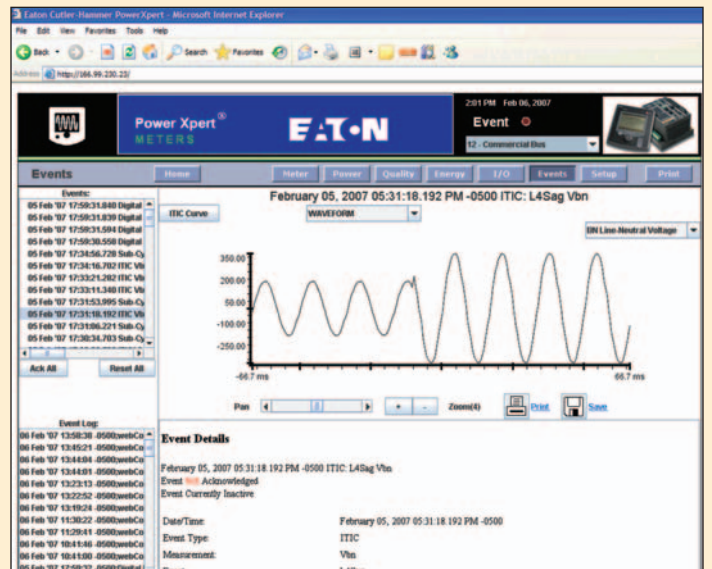
Harmonic Spectral Plot

The harmonic spectral plot displays both harmonics and interharmonics up to the 85th order. A detailed table also includes individual magnitudes and angles of current and voltage harmonics as well as a harmonic power calculation at each frequency. Even, Odd, Interharmonic and total THD are displayed for diagnostic purposes.



Disturbance Recording Sag/Swell Recording

Sixty cycles of waveform are oversampled at 1024 samples (100,000 samples with the 8000 meter) per cycle, including 30 cycles of pre and post event data. The Power Xpert 4000/6000/8000 Meter's embedded Web server supports viewing of triggered waveforms one channel at a time, including the ability to zoom and to scroll horizontally using a slider bar. Waveforms are stored in meter's non-volatile flash memory using an industry standard COMTRADE format. Waveforms can be automatically sent out by e-mail following an event, or can be retrieved from an FTP directory structure in meter's memory.



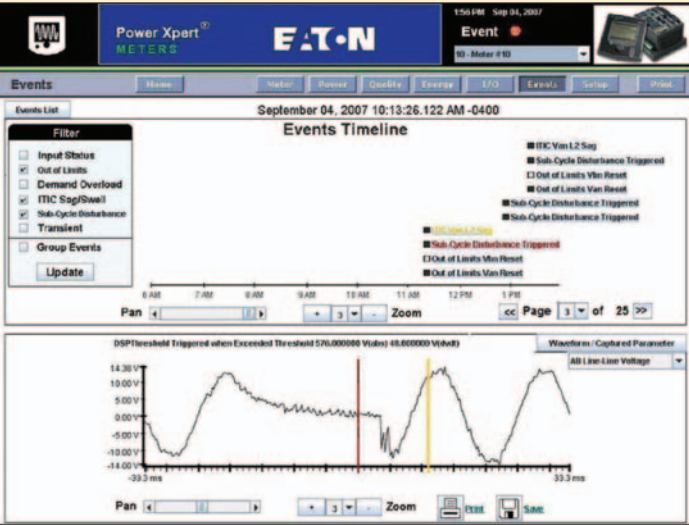
Power Xpert Meter

Access the Meter Through the Internet/Ethernet Via Embedded Web Server (continued)



Event Timeline View Screen

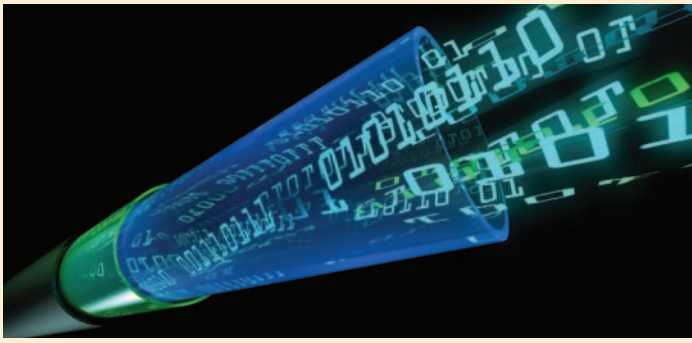
View and understand the sequence of events that have occurred during a period of time. Plot color-coded events on a captured waveform to gain insight into the sequence of events from one single cycle to the next one. This provides the user an excellent vantage point to review and compare multiple events at an unprecedented resolution (firmware v. 12.x.x and higher only).



Event Calendar View Screen

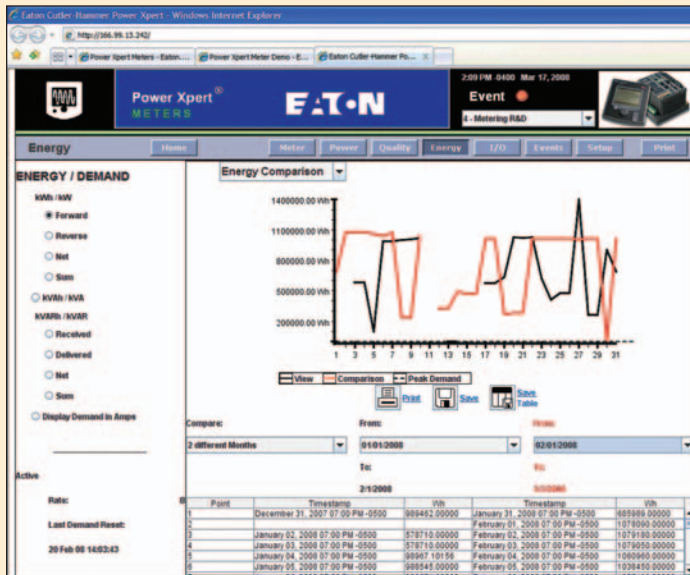
The Event Timeline calendar view provides instant insight to the frequency of power events and helps detect reoccurring problems. Color-coded events can be filtered to detect specific issues (firmware v. 12.x.x and higher only).





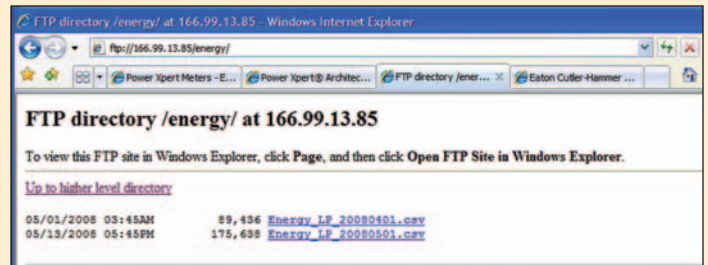
Energy Usage Comparison Screen

Energy usage patterns can be effortlessly analyzed with the month-to-month, week-to-week comparison chart. Raw data can be easily exported with the "Save Table" option to other applications such as Excel for further analysis or graphing (firmware v. 12.x.x and higher only).

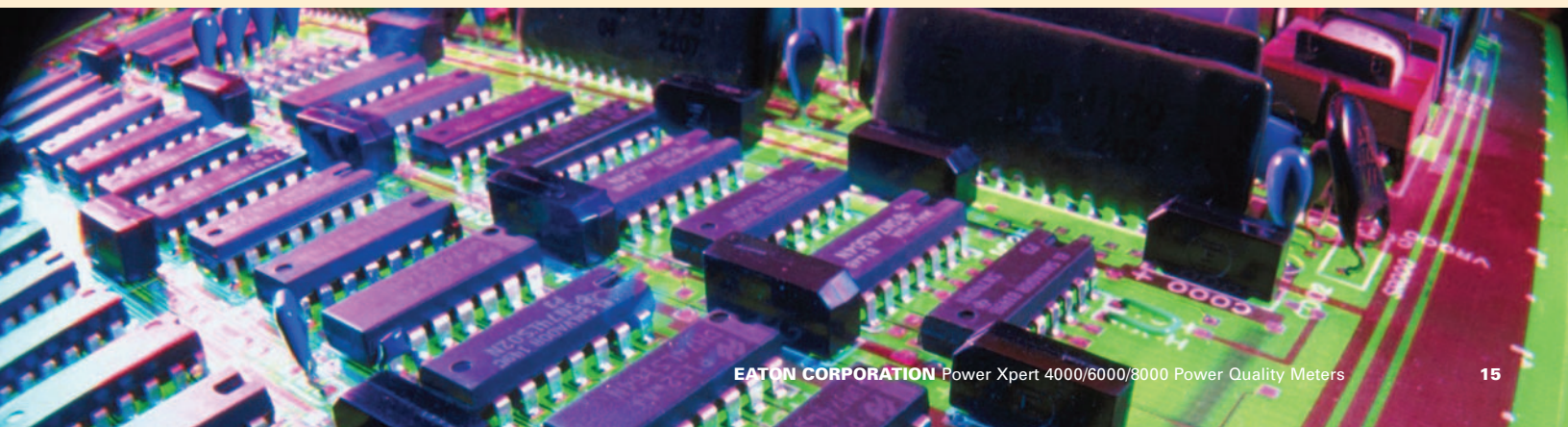
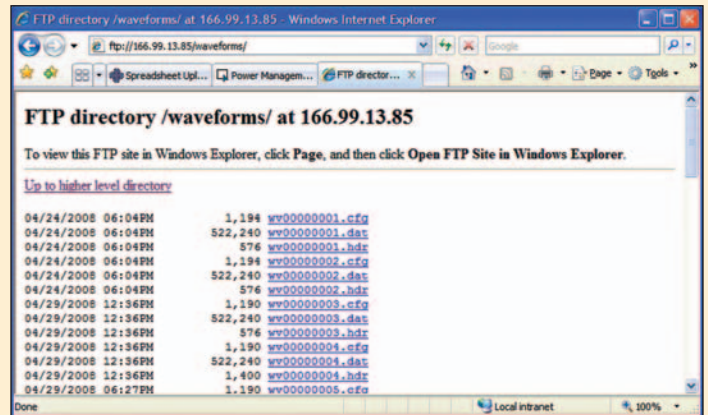


FTP Energy Directory

Power Xpert Meters save energy consumption measurements in monthly logs stored on the meter's FTP server. Logs can be easily read, copied or imported into third-party applications for detailed energy usage patterns analysis (firmware v. 12.x.x and higher only).



Waveform captures are automatically stored on the FTP server in the IEEE standard COMTRADE file format. This allows users to view and analyze the waveforms in any standard free-of-charge or commercial COMTRADE file viewer.



Power Xpert Meter

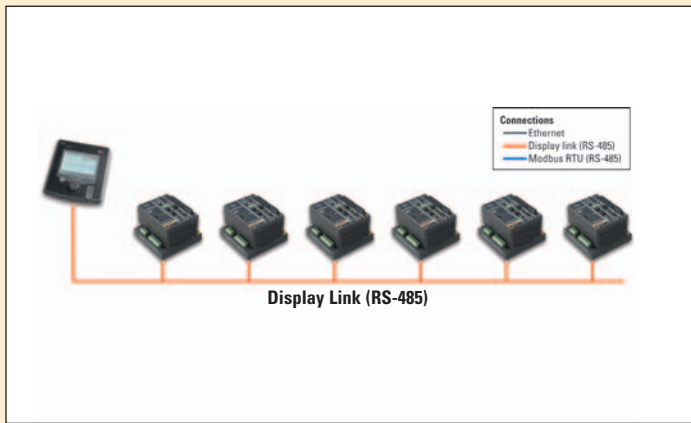
Configuration Communication Examples

The Power Xpert Meters fit seamlessly into most any existing or new environments due to standard and open protocol support. The Power Xpert Architecture allows the users to build on their existing infrastructure and the flexibility to upgrade as their needs grow going forward. Configuration of the meters is simple and easy through the Web-based GUI and/or the LCD display.

Display Link (RS-485)

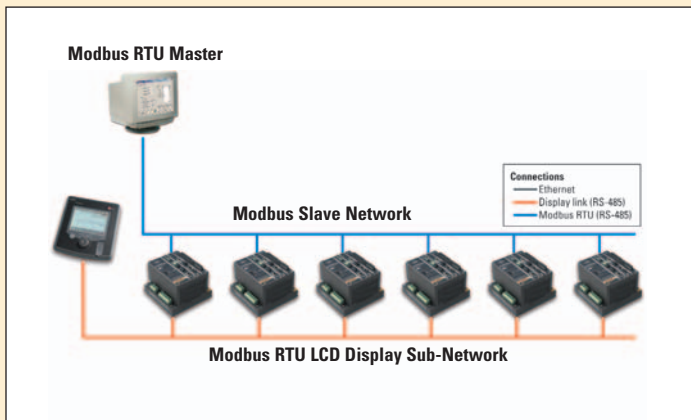
Up to 16 meters can be daisy-chained to a single Power Xpert LCD display.

Conveniently and cost-efficiently, a single Power Xpert LCD display can support up to 16 Power Xpert Meter modules. This is especially handy when several meter modules are installed in multiple rack or switchgear lineup formations.



Modbus RTU (RS-485) — Non-Web Enabled

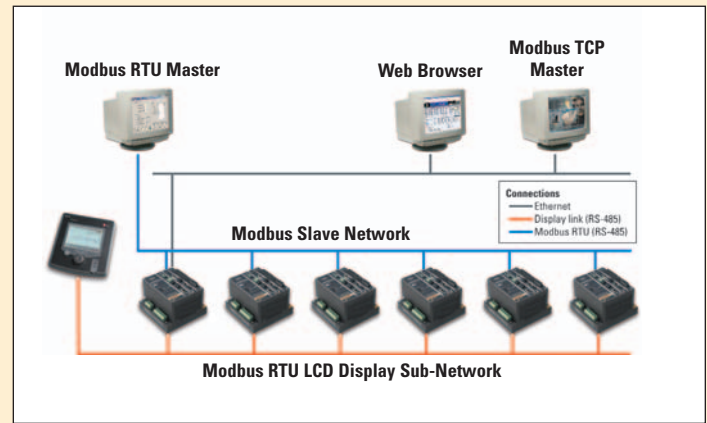
A Modbus RTU Master is supported in addition to the Power Xpert LCD display sub-network. Power Xpert Meters are set up as Modbus slaves. This configuration is a cost-efficient way to connect to an existing Modbus RTU Master, e.g., a building management system (BMS).



Web Enabled — Browser & Modbus TCP

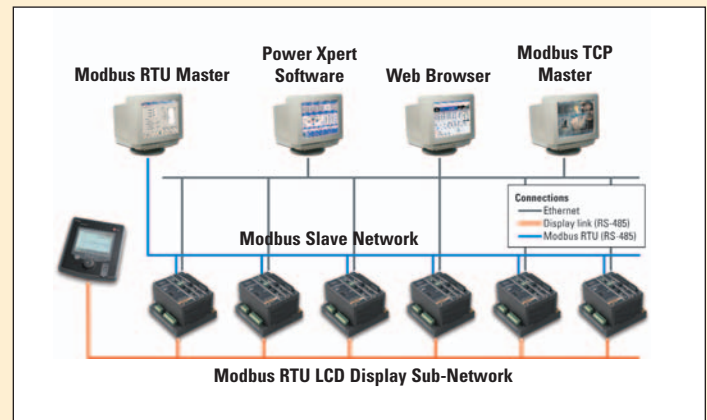
Web browsing and Modbus TCP Master connectivity have been added in this configuration example. Only one Power Xpert Meter has an Ethernet connection. All other Power Xpert Meter modules are utilizing this same connection.

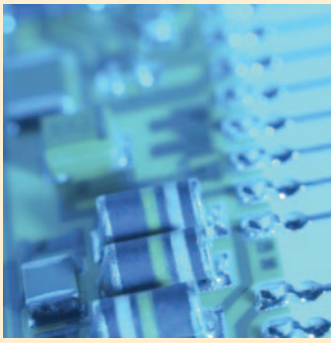
NOTE: Certain restrictions pertaining to waveforms, e-mail sending and other capabilities apply to the meters using the same Ethernet connection.



Web Enabled — Advanced System Functionality

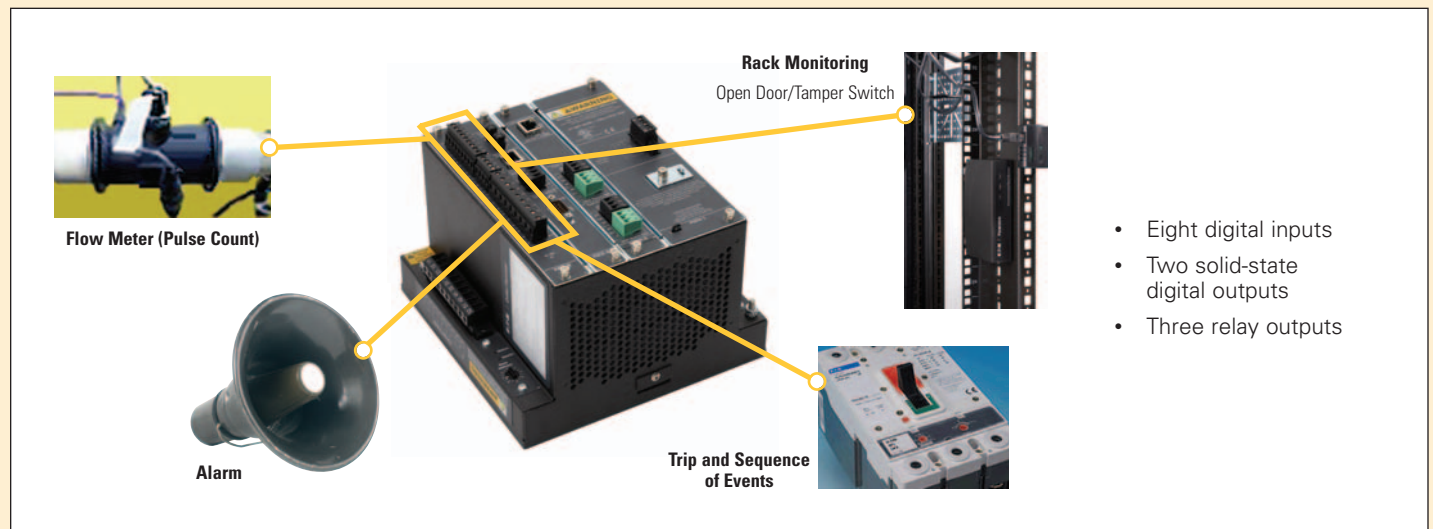
This configuration provides full Modbus RTU/TCP capabilities as well as direct Web browsing to individual meters. In addition Web services are supported to Power Xpert Software. This configuration is required for full Modbus and Power Xpert Software applications.





Digital I/O Card Usage Examples

The Digital I/O card option enables multiple sensor devices to be attached to the meter, including alarm horns, water on the floor, door open or motion detection among others. Solid-state digital outputs support KYZ pulses and the three relay outputs can be easily connected to third-party devices and controlled depending on the digital inputs (Boolean functionality support).



Power Xpert Meter

Available Accessories

Graphic Display Module

The graphic display module provides an at-a-glance view of power quality, with intuitive visual displays, statistically derived trending and red-yellow-green indicators of overall power health. In addition it has a RJ-45 Ethernet port built right into the faceplate for easy and safe meter configuration.

Communication Expansion Card

An optional communication expansion card supports remote communications with the onboard Web server application over your LAN/WAN, or the Internet via standard Ethernet 10/100Base-T and fiber-optic connection. Modbus is supported over TCP, RS-485 RTU and RS-232 ASCII ports.

I/O Card

The Power Xpert I/O Card is extremely flexible and can be used in a large variety of different applications. Digital inputs and relay outputs can be programmed to interact during various conditions defined by the user. Various third-party devices, such as alarm, pulse meters, trip units, sensors can be easily integrated to the

Power Xpert Meter. Triggers and events can be easily tied into the meter's standard functions, such as e-mail, logs and trends.

AUX Voltage Input Channels

The optional Voltage Auxiliary (VAUX) option provides three voltage input channels (V6, V7, V8) in addition to the standard 4 channels already built in.

CompactFlash Card

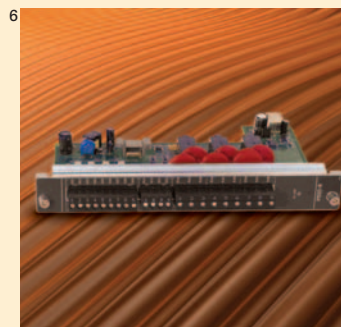
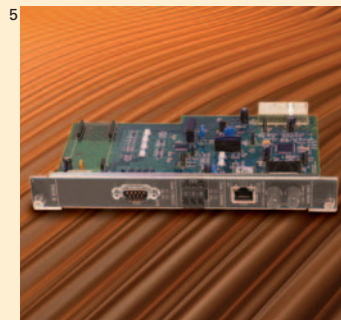
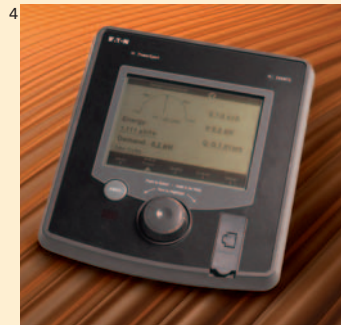
A CompactFlash memory card provides 1 GB of onboard memory to store high-resolution captured waveforms along with all the data logging associated with standard monitoring functions.

Mounting Options

- Back-to-back mount
- IQ Analyzer retrofit mount
- Reduced LCD display mount

4. Graphic Display Module
5. Communication Expansion Card
6. I/O Card

7. Auxiliary Voltage Input Channels
8. CompactFlash Card
9. Mounting Brackets



To find out more about how Power Xpert next-generation meters can improve power performance for your critical systems, visit our Web site at www.powerware.com/powerxpert or contact us at 1-800-525-2000.



Power Xpert Meter

Go Green



The Power Xpert Meter Helps You Go GREEN

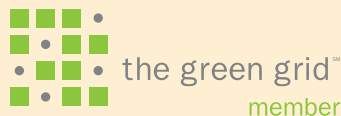
Environmental stewardship, innovation and leadership are becoming increasingly important as we take steps to create a sustainable environment for future generations by going green. The Power Xpert Meter includes components that can help a building go green and qualify for Leadership in Energy and Environmental Design (LEED®) credits through the U.S. Green Building Council (USGBC).

Eaton offers several solutions that assist you in reducing your energy consumption, minimizing environmental and economic impacts associated with excessive energy use.

The use of on-site renewable energy will require a means to measure the percentage of building energy requirements. The Power Xpert Meter can meter and provide the backbone of load control, measurement and monitoring for on-site power sources. When applying renewable energy, every effort should be made to take advantage of net metering with the local utility.

Comparing Month-to-Month Energy Usage — Go GREEN

The Power Xpert Meter establishes a baseline of your energy usage. It allows you to easily compare month-to-month energy usage graphs. It will automatically store the energy data for exporting detailed analysis, for example in Excel. Receive periodic e-mail alerts on energy consumption or triggered by thresholds you have set, to remind you and achieve your savings goals.



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PowerChain Management solutions help enterprises achieve sustainable and competitive advantages through proactive management of the power system as a strategic, integrated asset throughout its life cycle. With Eaton's distribution, generation and power quality equipment; full-scale engineering services; and information management systems, the power system is positioned to deliver powerful results: greater reliability, operating cost efficiencies, effective use of capital, enhanced safety and risk mitigation.

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Denmark: 45-3686-7910
Finland: 358-94-52-661
France: 33-1-6012-7400
Germany: 49-0-7841-604-0
Italy: 39-02-66-04-05-40
Norway: 47-23-03-65-50
Sweden: 46-8-598-940-00
United Kingdom: 44-1753-608-700

ASIA PACIFIC
Australia: 61-2-9693-9366
New Zealand: 64-0-3-343-3314
China: 86-21-6361-5599
HK/Korea/Taiwan: 852-2745-6682
India: 91-11-2649-9414 to 18
Singapore/SEA: 65-6825-1668



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Note: Features and specifications listed in this document are subject to change without notice and represent the maximum capabilities of the software and products with all options installed. This is not a complete feature list. Features and functionality may vary depending on selected options.



Powerware

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Printed in USA
Publication No. PX02FXA / Z7086
May 2008